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|---|---|
| DOLE, TIMOTHY J | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2858 | |

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/057,752 | SIGLINGER ET AL. | |
| | Examiner | Art Unit | |
| | Timothy J. Dole | 2858 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *03 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-27,34-39 and 42-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *37-39 and 42-58* is/are allowed.

6)☒ Claim(s) *1-27 and 34-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 5, 6, 8-10, 13, 14 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman in view of Brown, Jr.

Referring to claim 1, Tolman discloses a method for detecting a desired signal in an electromagnetically noisy environment, the method comprising: detecting electromagnetic signals comprising a noise signal and the desired signal (column 3, lines 63-66); filtering the signal to generate a filtered signal comprising substantially the desired signal (column 4, lines 18-27); and expanding the filtered signal to generate an expanded signal (column 4, lines 27-31). It should be noted that the probe is detecting signals in a telephone cable conductor pair in which a signal is flowing. Therefore since the signal flowing in the conductor would produce electric and magnetic fields, the detected signal is considered to be an electromagnetic signal.

Tolman does not disclose compressing the detected electromagnetic signals to generate a compressed signal.

Brown, Jr. discloses a method for detecting a signal comprising: compressing the detected signals to generate a compressed signal (column 4, lines 51-54).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the compressing step of Brown, Jr. into the method of Tolman for the purpose of compressing the signal whereby reducing error due to noise and improving the intelligibility of the signal (column 1, lines 11-14).

Referring to claim 2, Tolman discloses the method as claimed wherein the desired signal is a known signal (column 1, lines 14-19).

Referring to claim 3, Tolman discloses the method as claimed wherein the desired signal is a signal on a metallic conductor (column 1, lines 9-10).

Referring to claim 5, Tolman discloses the method as claimed except for the step of amplifying the compressed signal.

Brown, Jr. discloses the step of amplifying the compressed signal (column 3, lines 46-47).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the step of amplifying the compressed signal of Brown, Jr. into the method of Tolman for the purpose of making sure the compressed signal is output at the correct level whereby increasing the effectiveness of the system (46-56).

Referring to claim 6, Tolman discloses the method as claimed, further comprising the step of generating an audible sound indicative of the expanded signal (column 3, lines 16-24).

Referring to claim 8, Tolman discloses an apparatus for detecting a desired signal in electromagnetically noisy environments, the apparatus comprising: an antenna (fig. 2 (73)) configured to detect electromagnetic signals comprising a noise signal and the

desired signal; a bandpass filter (fig. 1 (31)) for generating a filtered signal comprising substantially the desired signal; and an electronic signal expandor (fig. 1 (43)) connected to the bandpass filter and configured for expanding the filtered signal to generate an expanded signal.

Tolman does not disclose an electronic signal compressor electrically connected to the antenna and configured for compressing the electromagnetic signals to thereby generate a compressed signal.

Brown, Jr. discloses an electronic signal compressor (fig. 4 (52)) electrically connected to the antenna and configured for compressing the electromagnetic signals to thereby generate a compressed signal.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the compressor of Brown, Jr. into the apparatus of Tolman for the same purpose as given in claim 1, above.

Referring to claim 9, Tolman discloses the apparatus as claimed wherein the desired signal is a known signal (column 1, lines 14-19).

Referring to claim 10, Tolman discloses the apparatus as claimed wherein the desired signal is a signal on a metallic conductor (column 1, lines 9-10).

Referring to claim 13, Tolman discloses the apparatus as claimed except for a gain controller configured for adjusting an amplitude of the compressed signal.

Brown, Jr. discloses a gain controller configured for adjusting amplitude of the compressed signal (column 3, lines 46-56).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the gain controller of Brown, Jr. into the apparatus of Tolman for the same purpose as given in claim 5, above.

Referring to claim 14, Tolman discloses the apparatus as claimed, further comprising an amplifier (fig. 1 (E)) and a speaker (fig. 1 (65)) connected to the electronic signal expandor (fig. 1 (43)) for generating an audible sound indicative of the expanded signal.

Referring to claim 23, Tolman discloses a method for detecting a desired signal in an electromagnetically noisy environment, the method comprising: detecting electromagnetic signals comprising a noise signal and the desired signal (column 3, lines 63-66) and filtering the compressed signal to generate a filtered signal comprising substantially the desired signal (column 4, lines 18-27).

Tolman does not disclose compressing the detected electromagnetic signals to generate a compressed signal.

Brown, Jr. discloses a method for detecting a signal comprising: compressing the detected signals to generate a compressed signal (column 4, lines 51-54).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the compressing step of Brown, Jr. into the method of Tolman for the same purpose as given in claim 1, above.

Referring to claim 24, Tolman discloses the method as claimed wherein the desired signal is a known signal (column 1, lines 14-19).

Referring to claim 25, Tolman discloses the method as claimed wherein the desired signal is a signal on a metallic conductor (column 1, lines 9-10).

3. Claims 4, 11, 12 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman in view of Brown, Jr. as applied to claims 1, 8, 23, 42, 49 and 54 above, and further in view of Spies.

Referring to claim 4, Tolman as modified discloses the method as claimed wherein the step of detecting electromagnetic signals is performed by a first antenna (column 3, lines 63-64).

Tolman as modified does not disclose the method further comprises: detecting with a second antenna electromagnetic signals comprising substantially the noise signal; and inverting the noise signal detected by the second antenna, and summing the inverted noise signal to the desired signal detected by the first antenna for the step of compressing.

Spies discloses a method comprising: detecting with a second antenna electromagnetic signals comprising substantially the noise signal (column 4, lines 16-24); and inverting the noise signal detected by the second antenna (column 5, lines 28-34), and summing the inverted noise signal to the desired signal detected by the first antenna for the step of compressing (column 5, lines 22-28). It should be noted that since the canceling antenna is wound in the same direction as the conductor winding, the signals would be summed together.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the second antenna of Spies into the method of Tolman as modified for the purpose of specifically detecting the noise near the detecting antenna,

whereby allowing the noise to be canceled and the detected signal to be more accurate (column 2, lines 8-11).

Referring to claim 11, Tolman as modified discloses the apparatus as claimed except wherein the apparatus further comprises: a second antenna configured for detecting electromagnetic signals comprising substantially the noise signal; and an amplifier connected to the electronic signal compressor, first antenna, and second antenna, the amplifier being configured for inverting the noise signal detected by the second antenna, and summing the inverted noise signal to the desired signal detected by the first antenna.

Spies discloses a second antenna (fig. 1 (25)) configured for detecting electromagnetic signals comprising substantially the noise signal; and an amplifier (fig. 1 (29)) connected to the electronic signal compressor, first antenna, and second antenna, the amplifier being configured for inverting the noise signal detected by the second antenna, and summing the inverted noise signal to the desired signal detected by the first antenna (column 5, lines 22-34).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the second antenna and amplifier of Spies into the apparatus of Tolman as modified for the same purpose as given in claim 4, above.

Referring to claim 12, Tolman discloses the apparatus as claimed except wherein the apparatus further comprises: a second antenna configured for detecting electromagnetic signals comprising substantially the noise signal; and a differential amplifier connected to the electronic signal compressor, first antenna, and second

antenna, the amplifier being configured for inverting the noise signal detected by the second antenna, and summing the inverted noise signal to the desired signal detected by the first antenna.

Spies discloses a second antenna (fig. 1 (25)) configured for detecting electromagnetic signals comprising substantially the noise signal; and a differential amplifier (fig. 1 (29)) connected to the electronic signal compressor, first antenna, and second antenna, the amplifier being configured for inverting the noise signal detected by the second antenna, and summing the inverted noise signal to the desired signal detected by the first antenna (column 5, lines 22-34). It should be noted that the amplifier is considered to be a differential amplifier since it is stated in the abstract: "the amplifier provides the necessary amplification".

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the second antenna and differential amplifier of Spies into the apparatus of Tolman as modified for the same purpose as given in claim 4, above.

Referring to claim 26, Tolman as modified discloses the method as claimed wherein the step of detecting electromagnetic signals is performed by a first antenna (column 3, lines 63-64).

Tolman as modified does not disclose the method further comprises: detecting with a second antenna electromagnetic signals comprising substantially the noise signal; and inverting the noise signal detected by the second antenna, and summing the inverted noise signal to the desired signal detected by the first antenna for the step of compressing.

Spies discloses a method comprising: detecting with a second antenna electromagnetic signals comprising substantially the noise signal (column 4, lines 16-24); and inverting the noise signal detected by the second antenna (column 5, lines 28-34), and summing the inverted noise signal to the desired signal detected by the first antenna for the step of compressing (column 5, lines 22-28). It should be noted that since the canceling antenna is wound in the same direction as the conductor winding, the signals would be summed together.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the second antenna of Spies into the method of Tolman as modified for the same purpose as given in claim 4, above.

4. Claims 7, 16 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman in view of Brown, Jr. as applied to claims 1, 8, 23, 42, 49 and 54 above, and further in view of Fricke et al.

Referring to claim 7, Tolman as modified discloses the method as claimed wherein the filtering is performed by a first filter (fig. 1 (31)).

Tolman as modified does not disclose the method further comprises controlling whether the compressed signal is directed through the first filter or through a second filter connected in parallel with the first filter and an expandor.

Fricke et al. discloses a method comprising controlling whether the compressed signal is directed through a first filter or through a second filter connected in parallel with the first filter and an expandor (column 3, lines 20-24).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the filter controller of Fricke et al. into the method of Tolman as modified for the purpose of more accurately filtering heavy noise by allowing filtering at different frequencies (column 3, lines 24-27).

Referring to claim 16, Tolman as modified discloses the apparatus as claimed except wherein the apparatus further comprises: a second bandpass filter connected in parallel with the first bandpass filter and the electronic signal expandor; and means for controlling whether the compressed signal is directed through the first bandpass filter or the second bandpass filter.

Fricke et al. discloses a second bandpass filter (fig. 2 (53)) connected in parallel with the first bandpass filter and the electronic signal expandor; and means for controlling whether the compressed signal is directed through the first bandpass filter or the second bandpass filter (fig. 2 (43), (45), (47) and (49)). It should be noted that the first bandpass filter and expander of Tolman replace the first bandpass filter (51) of Fricke et al. It should also be noted that the filter circuits of Fricke et al. are bandpass filters (column 3, lines 29-33).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the second filter and control means of Fricke et al. into the method of Tolman as modified for the same purpose as given in claim 7, above.

Referring to claim 27, Tolman as modified discloses the method as claimed wherein the filtering is performed by a first filter (fig. 1 (31)).

Tolman as modified does not disclose controlling whether the compressed signal is directed through the first filter or through a second filter connected in parallel with the first filter.

Fricke et al. discloses controlling whether the compressed signal is directed through a first filter or through a second filter connected in parallel with the first filter (column 3, lines 20-24).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the filter controller of Fricke et al. into the method of Tolman as modified for the same purpose as given in claim 7, above.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman in view of Brown, Jr. as applied to claim 8 above, and further in view of Stocklin.

Tolman as modified discloses the apparatus as claimed except for a tick generator connected to a speaker, the tick generator being configured for periodically generating a tick signal for output through the speaker to indicate that the apparatus is powered on and in a mode of operation.

Stocklin discloses a tick generator (fig. 2 (110)) connected to a speaker (fig. 2 (131)), the tick generator being configured for periodically generating a tick signal for output through the speaker to indicate that the apparatus is powered on and in a mode of operation (column 8, lines 27-30).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the tick generator of Stocklin into the apparatus of Tolman as

modified for the purpose of audibly indicating a mode of operation to a user whereby decreasing the chance for error due to a missed visual signal (column 8, lines 22-30).

6. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman and Spies in view of Brown, Jr.

Referring to claim 17, Tolman discloses an apparatus for detecting a known signal in an electromagnetically noisy environment, the apparatus comprising: a probe antenna (fig. 2 (73)) configured to detect electromagnetic signals comprising a noise signal and the known signal; a bandpass filter (fig. 1 (31)) for substantially filtering out the noise signal and outputting a filtered signal comprising substantially the signal and insubstantially the noise signal; an electronic signal expandor (fig. 1 (43)) connected to the bandpass filter and configured for receiving the filtered signal and generating an expanded signal comprising substantially the known signal amplified and attenuating substantially the noise signal of the filtered signal; and a speaker (fig. 1 (65)) connected to the electronic signal expandor for generating an audible sound indicative of the expanded signal.

Tolman does not disclose a noise canceling antenna configured for detecting electromagnetic signals comprising substantially the noise signal; an amplifier connected to the probe antenna and the noise canceling antenna, the amplifier being configured for inverting the noise signal detected by the noise canceling antenna, and outputting an amplified signal comprising the sum of the inverted noise signal and the known signal detected by the probe antenna; or an electronic signal compressor electrically connected

to the amplifier for receiving the amplified signal, and configured for compressing the amplified signal to thereby generate a compressed signal.

Spies discloses a noise canceling antenna (fig. 1 (25)) configured for detecting electromagnetic signals comprising substantially the noise signal; an amplifier (fig. 1 (29)) connected to the probe antenna and noise canceling antenna, the amplifier being configured for inverting the noise signal detected by the noise canceling antenna, and outputting an amplified signal comprising the sum of the inverted noise signal and the known signal detected by the probe antenna (column 5, lines 22-34).

Brown, Jr. discloses an electronic signal compressor (fig. 4 (52)) electrically connected to the amplifier for receiving the amplified signal, and configured for compressing the amplified signal to thereby generate a compressed signal.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the noise canceling antenna and amplifier of Spies and the compressor of Brown, Jr. into the apparatus of Tolman for the same purposes as given in claims 1 and 4, above.

Referring to claim 18, Tolman discloses the apparatus as claimed wherein the signal is a known signal on a wire (column 1, lines 14-19).

Referring to claim 19, Tolman discloses the apparatus as claimed except wherein the amplifier is a differential amplifier.

Spies discloses the amplifier is a differential amplifier (fig. 1 (29)). It should be noted that the amplifier is considered to be a differential amplifier since it is stated in the abstract: "the amplifier provides the necessary amplification".

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the differential amplifier of Spies into the apparatus of Tolman for the same purpose as given in claim 4, above.

Referring to claim 20, Tolman discloses the apparatus as claimed except for a gain controller interconnected between the electronic signal compressor and the bandpass filter and configured for adjusting an amplitude of the compressed signal.

Brown, Jr. discloses a gain controller interconnected between the electronic signal compressor and the bandpass filter and configured for adjusting an amplitude of the compressed signal (column 3, lines 46-56).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the gain controller of Brown, Jr. into the apparatus of Tolman for the same purpose as given in claim 5, above.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman and Spies in view of Brown, Jr. as applied to claim 17 above, and further in view of Stocklin.

Tolman as modified discloses the apparatus as claimed except for a tick generator connected to a speaker, the tick generator being configured for periodically generating a tick signal, and the speaker being configured for making the tick signal audible to indicate that: the apparatus is powered on and operating in a mode of operation utilizing the electronic signal expandor.

Stocklin discloses a tick generator (fig. 2 (110)) connected to a speaker (fig. 2 (131)), the tick generator being configured for periodically generating a tick signal for

output through the speaker to indicate that the apparatus is powered on and in a mode of operation (column 8, lines 27-30) utilizing the electronic signal expandor.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the tick generator of Stocklin into the apparatus of Tolman as modified for the same purpose as given in claim 15, above.

8. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman and Spies in view of Brown, Jr. as applied to claim 17 above, and further in view of Fricke et al.

Tolman as modified discloses the apparatus as claimed except wherein the apparatus further comprises: a second bandpass filter connected in parallel with the first bandpass filter and the electronic signal expandor; and means for controlling whether the compressed signal is directed through the first bandpass filter or the second bandpass filter.

Fricke et al. discloses a second bandpass filter (fig. 2 (53)) connected in parallel with the first bandpass filter and electronic signal expandor; and means for controlling whether the compressed signal is directed through the first bandpass filter or the second bandpass filter (fig. 2 (43), (45), (47) and (49)). It should be noted that the first bandpass filter and expander of Tolman replace the first bandpass filter (51) of Fricke et al. It should also be noted that the filter circuits of Fricke et al. are bandpass filters (column 3, lines 29-33).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the second filter and control means of Fricke et al. into the method of Tolman as modified for the same purpose as given in claim 7, above.

9. Claims 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spies in view of Brown, Jr.

Referring to claim 34, Spies discloses a method for detecting a desired signal in an electromagnetically noisy environment, the method comprising: detecting with a first antenna electromagnetic signals comprising a noise signal and the desired signal (column 2, line 66 – column 3, line 24); detecting with a second antenna electromagnetic signals comprising substantially the noise signal (column 4, lines 16-24); and inverting the noise signal detected by the second antenna (column 5, lines 28-34), and summing the inverted signal to the signal detected by the first antenna to generate a summed signal (column 5, lines 22-28). It should be noted that since the canceling antenna is wound in the same direction as the conductor winding, the signals would be summed together.

Spies does not disclose compressing the summed signal to generate a compressed signal; filtering the compressed signal to generate a filtered signal comprising substantially the desired signal; and expanding the filtered signal.

Brown, Jr. discloses compressing an input signal to generate a compressed signal (column 4, lines 51-54); filtering the compressed signal to generate a filtered signal comprising substantially the desired signal (column 4, lines 55-57); and expanding the filtered signal (column 5, lines 17-23).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the steps of compressing, filtering and expanding of Brown, Jr. into the method of Spies for the purpose of manipulating a signal to reducing error due to noise and improving the intelligibility of the signal (column 1, lines 11-35).

Referring to claim 35, Spies discloses a method for detecting a desired signal in an electromagnetically noisy environment, the method comprising: detecting with a first antenna electromagnetic signals comprising a noise signal and the desired signal (column 2, line 66 – column 3, line 24); detecting with a second antenna electromagnetic signals comprising substantially the noise signal (column 4, lines 16-24); and inverting the noise signal detected by the second antenna (column 5, lines 28-34), and summing the inverted signal to the signal detected by the first antenna to generate a summed signal (column 5, lines 22-28). It should be noted that since the canceling antenna is wound in the same direction as the conductor winding, the signals would be summed together.

Spies does not disclose filtering the summed signal to generate a filtered signal comprising substantially the desired signal and expanding the filtered signal.

Brown, Jr. discloses filtering an input signal to generate a filtered signal comprising substantially the desired signal (column 4, lines 55-57); and expanding the filtered signal (column 5, lines 17-23).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the steps of filtering and expanding of Brown, Jr. into the method of Spies for the same purpose as given in claim 34, above.

Referring to claim 36, Spies discloses a method for detecting a desired signal in an electromagnetically noisy environment, the method comprising: detecting with a first antenna electromagnetic signals comprising a noise signal and the desired signal (column 2, line 66 – column 3, line 24); detecting with a second antenna electromagnetic signals comprising substantially the noise signal (column 4, lines 16-24); and inverting the noise

signal detected by the second antenna (column 5, lines 28-34), and summing the inverted signal to the signal detected by the first antenna to generate a summed signal (column 5, lines 22-28). It should be noted that since the canceling antenna is wound in the same direction as the conductor winding, the signals would be summed together.

Spies does not disclose compressing the summed signal to generate a compressed signal and filtering the compressed signal to generate a filtered signal comprising substantially the desired signal.

Brown, Jr. discloses compressing an input signal to generate a compressed signal (column 4, lines 51-54) and filtering the compressed signal to generate a filtered signal comprising substantially the desired signal (column 4, lines 55-57).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the steps of compressing and filtering of Brown, Jr. into the method of Spies for the same purpose as given in claim 34, above.

***Response to Arguments***

10. Applicant's arguments filed October 3, 2003 have been fully considered but they are not persuasive.

11. In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Specifically, with respect to claims 1, 8 and 23, it should be noted that Tolman is the main reference for the rejection and

thereby, shows most of the claimed elements such as the electromagnetic signal detection. The Brown, Jr. reference is provided to perform the electronic signal compression when combined with Tolman.

12. In response to Applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as shown in claim 1 above, the motivation for the combination is for the purpose of compressing the signal whereby reducing error due to noise and improving the intelligibility of the signal (Brown, Jr. column 1, lines 11-14).

13. In response to Applicant's arguments with respect to claim 17, that Spies does not show " a noise canceling antenna configured for detecting electromagnetic signals comprising substantially the noise signal; an amplifier connected to the probe antenna and the noise canceling antenna, the amplifier being configured for inverting the noise signal detected by the noise canceling antenna, and outputting an amplified signal comprising the sum of the inverted noise signal and the known signal detected by the probe antenna" (page 35, second paragraph), it should be noted that as shown in the rejection, above, Spies shows all the limitations as claimed. The noise canceling antenna (fig. 1 (25)) is configured for detecting electromagnetic signals comprising substantially the noise signal (column 4, lines 16-20); an amplifier (fig. 1 (29)) connected to the probe antenna (fig. 1 (13)) and the noise canceling antenna (fig. 1 (25)), the

amplifier being configured for inverting the noise signal detected by the noise canceling antenna, and outputting an amplified signal comprising the sum of the inverted noise signal and the known signal detected by the probe antenna (column 5, lines 15-34).

### *Allowable Subject Matter*

14. Claims 37-39 and 42-58 are allowed.

### *Final Rejection*

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Dole whose telephone number is (571) 272-2229. The examiner can normally be reached on Mon. thru Fri. from 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (571) 272-2233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TJD

ANJAN DEB
PRIMARY EXAMINER